

REMARKS

Claims 1-21 remain in this application. Claim 21 has been amended to overcome the Examiner's rejection under 35 U.S.C. §112. Claims 1, 11, and 18 have been amended to change "1" to "I" in describing Al. Minor editorial amendments have been made to claims 2, 3, 7, 8 and 11-13. The abstract has been amended to be one paragraph. Claims 3, 8, 11 and 13 have been amended to indicate that the orientation layer is directly on the substrate to better define Applicants' invention.

The Examiner has interpreted claims 4, 9 and 14. Applicants do not understand the interpretation. Claim 4 depends on claim 1 and further defines the underlayer required in claim 1. The situation is similar in each of claims 9 and 14 which define further the underlayer claimed in the claim from which they depend. Applicants do not understand what is meant by claims not explicitly stating that the underlayers need be present.

*underlayer
is not
required
may or
may not
be present*

Claim 1 was provisionally rejected based on obviousness type double patenting. A terminal disclaimer is enclosed to overcome this rejection. Thus, claim 1 and claims 2, 4 and 5 depending thereon should be allowed, along with claims 16-20 that were indicated as allowable, and claim 21, which depends on claim 1.

Claims 3-4, 6-9, 11-14 and 21 were rejected as anticipated by Lambeth et al. Claims 5, 10 and 15 were rejected as obvious over Lambeth et al. in view of Ohkijima et al. Since claims 4 and 21 depend on claim 1, which was not rejected as anticipated, nor is it, these claims also are not anticipated and along with claim 5, should be allowed as indicated above.

Applicants respectfully traverse the rejections of claims 3, 6-10 and 11-15. Lambeth's film structure comprises an Si single crystal substrate, an Ag layer having a fcc structure, a Cr underlying layer having a bcc structure and a Co magnetic layer, i.e., a Co/Cr/Ag/Si (rather than a Co/Cr/TiAl/substrate). Lambeth discloses the use of Ag as a first underlayer and an Si single crystal as a substrate for a longitudinal recording medium, and its orientation planes are (110), (001) or (111) (see from col. 7, line 44 to col. 8, line 50). In particular, Lambeth controls the longitudinal orientation of a magnetic recording medium by using an orientation plane of an Si single substrate as a "temple" for the orientation and growth of an fcc first underlayer and a bcc second underlayer. In other words, the orientation of underlayers or seed layers in Lambeth is a result of the orientation plane of the Si substrate rather than resulting from their own orientation.

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*appls argument
is not germane*

*"orientation control"
has been interpreted in
light of spec to mean
controlling growth of overlying
layer(s)*

Lambeth requires the Si substrate for easily controlling of the growth orientation of the substrate. The Ag layer is indispensable due to lattice matching considerations.

Thus, between the Si substrate and the Cr underlayer or Co magnetic layer, Ag, which has a larger lattice constant than Cr or Co, is necessary. The lattice constant of the orientation plane of the Si substrate is very large in comparison with that of a magnetic layer, and therefore if a Cr underlayer or a Co magnetic layer was directly formed on the orientation plane of the Si substrate, the mismatch of the lattice constant between them would be too large.

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The longitudinal magnetic medium of the present invention, as recited in the rejected claims comprises: an orientation control layer formed directly on the substrate and a Co alloy magnetic layer formed thereon directly or indirectly with a Cr underlayer or Cr alloy underlayer. The present invention controls the orientation of the Co alloy magnetic layer by the use of the orientation control layer directly formed on the substrate. In contrast, Lambeth controls the orientation of the Co magnetic layer by use of the orientation plane of the Si single crystal substrate. The present invention does not use an Si single crystal substrate and does not need to use an Ag layer for matching lattice constants between the Si substrate and the Cr underlayer or Co magnetic layer. In other words, the references do not teach or suggest the structure of "a substrate, an orientation control layer directly formed thereon," a limitation found in all the rejected claims.

In view of the above, all claims are now in condition for allowance, prompt notice of which is respectfully solicited.

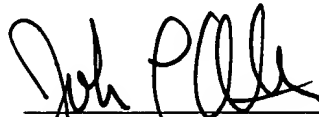
The Examiner is invited to call the undersigned at (202) 220-4200 discuss any information concerning this application.

Applicants respectfully request a one month Extension of Time to respond to the Office Action of November 21, 2002. The extended period expires April 21, 2003.

The Office is hereby authorized to charge the fee of \$410.00 for a Petition for Extension of Time Under 37 C.F.R. § 1.136(a) and any additional fees under 37 C.F.R. § 1.16 or § 1.17 or credit any overpayment to Deposit Account No. 11-0600.

Respectfully submitted,

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